

TITLE: COOKING ASSEMBLY WITH A SAFETY DEVICE**BACKGROUND OF THE INVENTION****1. Field of the Invention**

The invention relates to a cooking assembly, more particularly to a cooking assembly with a safety device for preventing insertion of a plug into a socket of a tray unit when the tray unit is disconnected from a base member and for preventing undesired removal of the tray unit from a base member when the plug is inserted into the socket of the tray unit.

2. Description of the Related Art

Referring to Figure 1, a conventional cooking assembly 11 is shown to include a base member 13, a tray unit 14 mounted detachably on the base member 13 and formed with a socket 140, a plug 12 adapted to be inserted releasably into the socket 140 for establishing electrical connection between the tray unit 14 and a power source (not shown), and a top cover 15 for covering the tray unit 14.

One disadvantage resulting from the use of the aforesaid conventional cooking assembly resides in that when the tray unit 14 is removed from the base member 13 for cleaning purposes, the user may accidentally get an electric shock during cleaning process if the plug 12 is still in the socket 140.

SUMMARY OF THE INVENTION

The object of this invention is to provide a cooking

assembly with a safety device so as to eliminate the aforesaid disadvantage of the conventional cooking assembly.

Accordingly, a cooking assembly of the present invention includes: a cooking device a base member;
5 a tray unit mounted detachably on the base member, and including a cooking tray and a socket that is fixed securely to the cooking tray and that has a socket casing formed with a plug hole that defines a plug path
10 therein; a plug insertable releasably into the plug hole in the socket casing along the plug path for establishing electrical connection with the tray unit; and a safety device including at least one spring-biased latch mounted movably in the socket casing,
15 having first and second engaging ends, and movable in a transverse direction relative to the plug path between a first position, in which the first engaging end of the latch is disposed at a position within the plug path, thereby permitting contact between the
20 first engaging end of the latch and the plug when the plug is inserted into the plug hole in the socket casing, and in which the second engaging end of the latch is disengaged from the base member, and a second position, in which the first engaging end of the latch is disposed
25 at a position outside the plug path , and in which the second engaging end of the latch engages the base member.

BRIEF DESCRIPTION OF THE DRAWINGS

Other features and advantages of this invention will become more apparent in the following detailed description of the preferred embodiment of this invention, with reference to the accompanying drawings, in which:

Figure 1 is an exploded perspective view of a conventional cooking assembly;

Figure 2 is an exploded perspective view of the preferred embodiment of a cooking assembly according to the present invention;

Figure 3 is an enlarged sectional view of a tray unit of the preferred embodiment;

Figure 4 is a fragmentary, exploded, partly cutaway view of the preferred embodiment;

Figure 5 is a fragmentary, exploded, partly cutaway view of the preferred embodiment, illustrating how latches and stop members of a safety device are mounted in a socket of the tray unit;

Figures 6 and 7 are fragmentary, exploded, sectional views of the preferred embodiment, illustrating how the latches of the safety device are moved from a first position to a second position upon insertion of a plug into the socket of the tray unit;

Figure 8 is a fragmentary sectional view of the preferred embodiment, illustrating how the plug is inserted through the stop members and the tray unit

when the tray unit is mounted on a base member; and

Figure 9 is a fragmentary sectional view of the preferred embodiment, illustrating how the plug is blocked by the stop members when the tray unit is removed from the base member.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to Figures 2 to 5, the preferred embodiment of a cooking assembly according to the present invention is shown to include a base member 2, a tray unit 3, a plug 4, and a safety device 5.

As illustrated, the base member 2 has a front end 20 formed with a socket-receiving recess 21. The socket-receiving recess 21 is defined by a recess-confining wall 21W that has two opposite vertical wall portions 211 formed with two retention grooves 23. The front end 20 of the base member 2 is further formed with two engaging parts 22 that project respectively and transversely from the vertical wall portions 211 of the recess-confining wall 21W into the recess 21.

The tray unit 3 is mounted detachably on the base member 2, and includes a cooking tray 31, a heating member 32, an oil collecting tray 35, and a socket. The heating member 32 is embedded in the cooking tray 31 for heating the same, and has two electrical contacts 321 (see Figure 2). The cooking tray 31 has a corrugated cooking surface 311 and a flat cooking surface 312 (see Figure 3) opposite to the corrugated

cooking surface 311. The cooking tray 31 can be turned over on the base member 2 so that food can be disposed on either one of the cooking surfaces 311,312 for cooking. The oil-collecting tray 35 is disposed below the cooking tray 31 for collecting oil that drips therefrom during a cooking operation. The socket is fixed securely to a front end of the cooking tray 31, has an insulated socket casing 33 formed with a plug hole 333 that defines a plug path 333" therein, and is received in that socket-receiving recess 21 when the tray unit 3 is mounted on the base member 2.

The plug 4 is connected to a power source (not shown) through a cable 41 and is insertable into the socket for establishing electrical connection between the cooking assembly of the present invention and the power source. The plug 4 includes an insulated insert seat 411 formed with two electrical terminals 42 (only one is visible in Fig. 2, 4, and 5), a temperature sensor 43 projecting outwardly from the insert seat 411, and a temperature control 44. The temperature sensor 43 is connected to the temperature control 44 for controlling or setting the temperature of the heating member 32. When the tray unit 3 is mounted on the base member 2, the insert seat 411 of the plug 4 is insertable releasably into the plug hole 333 in the socket casing 33 along the plug path 333" for establishing an electrical connection between the electrical

terminals 42 of the plug 4 and the electrical contacts 321 of the heating member 32 (see Figure 7).

The safety device 5 includes two spring-biased latches 51 and two spring-biased stop members 52. Each of the latches 51 is mounted movably in the socket casing 33, has first and second engaging ends 511, 512, and is movable in a transverse direction relative to the plug path 333". When the tray unit 3 is mounted on the base member 2 and when the plug is detached from the tray unit 3, the latches 51 are disposed at a first position, in which the first engaging ends 511 of the respective latches 51 are disposed at a position within the plug path 333" (see Figure 6), and in which the second engaging ends 512 of the respective latches 51 are disengaged from the base member 2 (see Figure 6). When the plug 4 is inserted into the socket hole 333 in the socket casing 33 to push the first engaging ends 511 of the latches 51, the latches 51 are moved in the transverse direction from the first position to a second position, in which the first engaging ends 511 of the respective latches 51 are disposed at a position outside the plug path 333" (see Figure 7), and in which the second engaging ends 512 of the respective latches 51 engage the base member 2, thereby preventing untimely and undesired removal of the tray unit 3 from the base member 2 when the plug 4 is inserted into the socket casing 33.

Two first urging members 510 (see Figure 5) are mounted respectively on the latches 51, and are coupled to the socket casing 33 in such a manner as to urge the latches 51, respectively, toward the first position.

The socket casing 33 defines an inner space 330 therein, and a rear opening for access into the inner space 330, and includes a front wall 331, two opposite side walls 332, and a rear cover 53. The front wall 331 of the socket casing 33 defines a front side of the inner space 330, and is formed with an opening in spatial communication with the plug hole 333 for extension of the insert seat 411 of the plug 4 therethrough. The side walls 332 extend rearwardly and respectively from two opposite sides of the front wall 331, and are respectively formed with two opposite extension slots 335. The side walls 332 of the socket casing 33 are further formed with two apertures 334, respectively, which are disposed rearwardly of the extension slots 335, respectively. The rear cover 53 is coupled to the front end of the cooking tray 31, and is further mounted on the socket casing 33 in such a manner as to cover the rear opening in the socket casing 33. The latches 51 are mounted movably in the inner space 330 in the socket casing 33, and extend in the transverse direction. The socket casing 33 is further formed with a hollow protrusion 337 that

projects rearwardly from the front wall 331 thereof into the inner space 330, that defines the plug hole 333, and that is formed with two opposite holes 337" in spatial communication with the plug hole 333. When
5 the latches 51 are disposed at the first position, the first engaging ends 511 of the latches 51 extend respectively through the holes 337" in the protrusion 337 and into the plug path 333" (see Figure 6), and the second engaging ends 512 of the latches 51 are
10 received in the extension slots 335 in the socket casing 33. When the latches 51 are disposed at the second position, the second engaging ends 512 of the latches 51 extend respectively through the extension slots 335 and into the retention grooves 23 in the
15 vertical wall portions 211 of the recess 21 in the base member 2 (see Figure 7) to thereby prevent removal of the tray unit 3 from the base member 2, and the first engaging ends 511 of the latches 51 are retracted from the plug path 333" and are thus received within the
20 holes 337" in the protrusion 337 (see Figure 7).

In this preferred embodiment, the stop members 52 are mounted movably in the socket casing 33, and are disposed rearwardly of the latches 51, respectively. Each of the stop members 52 has opposite first and
25 second ends 522, 521. The temperature sensor 43 of the plug 4 moves along a sensor passage during insertion of the plug 4 into the plug hole 333 in the socket casing

33 to come close to the tray unit 3. When the tray unit 3 is detached from the base member 2, as shown in Figure 9, the stop members 52 are disposed at a stopping position, in which the first ends 522 of the stop members 52 overlap each other and are disposed at a position within the sensor passage, thereby preventing extension of the temperature sensor 43 through the sensor passage to come close to the tray unit 3. Upon mounting of the tray unit 3 on the base member 2, as shown in Figure 8, the engaging parts 22 extend respectively through the apertures 334 in the side walls 332 of the socket casing 33 and push the second ends 521 of the stop members 52 such that the stop members 52 move in the transverse direction from the stopping position to an open position, in which the first ends 522 of the stop members 52 are disposed at a position outside the sensor passage, thereby permitting extension of the temperature sensor 43 of the plug 4 through the sensor passage to come close to the cooking tray 31. Two second urging members 520 are mounted respectively on the stop members 52, and are coupled to the socket casing 33 in such a manner as to urge, respectively, the stop members 52 to the stopping position (see Figs. 5 and 9).

Each of the stop members 52 preferably has a U-shaped end segment that includes a bight portion 523 (see Figures 4 and 5) defining the first end 522 of

a respective one of the stop members 52, and two opposite arm portions 523" extending from two opposite sides of the bight portion 523 and defining a gap 5230 therebetween. The gaps 5230 between the arm portions 523" of the U-shaped end segments of the stop members 52 are disposed outside of the sensor passage when the stop members 52 are disposed at the stopping position, and are disposed within the sensor passage to permit extension of the temperature sensor 43 therethrough when the stop members are disposed at the open position.

With the inclusion of the latches 51 and the stop members 52 of the safety device 5 in the cooking assembly of the present invention, undesired removal of the tray unit 3 from the base member 2 can be prevented when the plug 4 is inserted into the plug hole 333 in the socket casing 33, and insertion of the plug into the plug hole 333 in the socket casing 33 is prevented when the tray unit 3 is removed from the base member 2, thereby eliminating the aforesaid drawback associated with the prior art.

With this invention thus explained, it is apparent that numerous modifications and variations can be made without departing from the scope and spirit of this invention. It is therefore intended that this invention be limited only as indicated in the appended claims.